State of Animal Health Emergency Management:

Producer Perspective

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National Pork Board

Recent Foreign Animal Disease Outbreaks

- Haiti - Classical Swine Fever, August 1996
- Netherlands - Classical Swine Fever, February 1997
- Taiwan - Foot-and-Mouth Disease, March 1997
- Dominican Republic - Classical Swine Fever, August 1997
- Malaysia - Nipah Virus, 1998
- Korea, Japan, Argentina, Brazil, Egypt, and South Africa - Foot-and-Mouth Disease, 2000
- U.K. - Classical Swine Fever, 2000, Foot-and-Mouth, 2001

Increasing Risk of a Foreign Animal Disease

- International Visitors
- U.S. Producer/Veterinarian Travel
- Increase in Imports
- Illegal Importation of Products and Animals
- Bioterrorism

Economic Effects of a Foreign Animal Disease

- Producers
- Practitioners
- Feed Industry
- Pharmaceutical Industry
- Livestock Markets
- Packers
- Consumers

1997-1998 Classical Swine Fever Outbreak in The Netherlands

- Industry - Prior to Outbreak
  - 21,000 herds, 24 million annual slaughter
    - » < 1/4 size of U.S. pork industry

- Cost of Epidemic - $3 Billion

	$US Million
- Eradication Activities	$ 490
- Buying out (Welfare, Pre-emptive)	$ 970
- Production Losses	$1,500

- Depopulated 12,392,000 Million Pigs

Loss of Export Markets

Increasing Need for Partnerships

- Decreased Government (State and Federal) Personnel
- Decreased Government Funding
- Increased Complexity of Animal Health Issues/Needs
- Integration of Local, National, and International Perspectives in Decision-making

Paradigm Shift - Call Government to Everyone Has Role

“A sense of shared responsibility between the animal industry, practitioners, and State and Federal government animal health officials should replace the attitude of emergency management being solely a Federal responsibility."

National Animal Health Emergency Management Steering Committee

- Started March 1996 as a Working Group
- Quarterly Meetings
- Monthly Conference Calls
- Workshops for State and Federal Animal Health Officials and Industry

NAHEMS Steering Committee

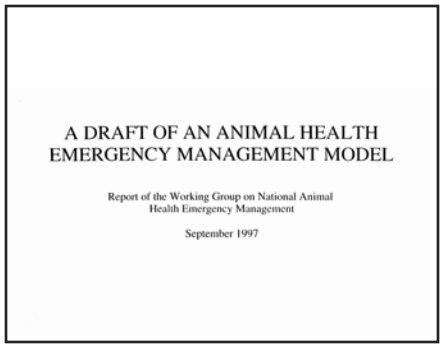
- Animal Agriculture Coalition (AAC)
- American Veterinary Medical Association (AVMA)
- U.S. Animal Health Association (USAHA)
- U.S. Department of Agriculture (USDA)
  - Animal and Plant Health Inspection Service (APHIS)
  - Agricultural Research Service (ARS)
  - Cooperative State Research, Education, and Extension Service (CSREES)
  - Food Safety and Inspection Service (FSIS)
  - Office of Crisis Planning and Management
- Federal Emergency Management Agency (FEMA)
- National Emergency Management Association (NEMA)
- American Association of Veterinary Laboratory Diagnosticians (AAVLD)

Who is the AAC?

AESOP Enterprises, Ltd.
American Association of Equine Practitioners
American Dairy Science Association
American Farm Bureau Federation
American Feed Industry Association
American Horse Council
American Meat Institute
American Sheep Industry Association
American Society of Animal Science
American Veal Association
American Veterinary Medical Association
Animal Health Institute
Association of American Veterinary Medical Colleges
Catfish Farmers of America
Council for Agricultural Science and Technology
Federation of Animal Science Societies
Holstein Association U.S.A., Inc.
Livestock Marketing Association
National Association of Federal Veterinarians
National Aquaculture Association
National Cattlemen's Beef Association
National Chicken Council
National Farmers Union
National Institute for Animal Agriculture
National Milk Producers Federation
National Pork Board
National Pork Producers Council
National Renderers Association
National Turkey Federation
North American Elk Breeders Association
U.S. Animal Health Association
U.S. Poultry and Egg Association

NAHEMS Steering Committee - Key Accomplishments

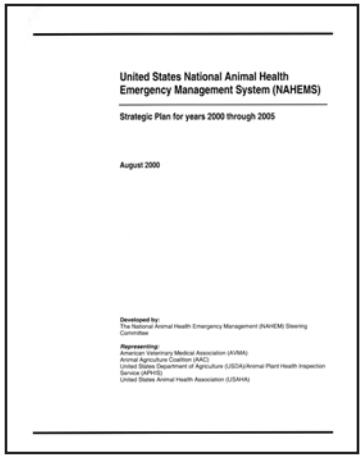
- Animal Health Emergency Management Model


A DRAFT OF AN ANIMAL HEALTH EMERGENCY MANAGEMENT MODEL

Report of the Working Group on National Animal Health Emergency Management

September 1997

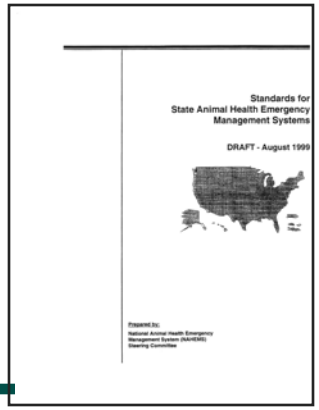
- Strategic Plan


United States National Animal Health Emergency Management System (NAHEMS)

Strategic Plan for years 2000 through 2005

August 2000

- Standards for State Animal Health Emergency Management Systems


Standards for State Animal Health Emergency Management Systems

DRAFT - August 1999

Animal Health Emergency Model

- Defines Roles and Responsibilities for Federal, State and Industry Groups for:
  - Prevention
  - Preparedness
  - Response
  - Recovery

Prevention - Producers/Practitioners

- Provide input in development of import policies
- Pass on information on health status of other countries
- Develop priorities for research
- Solicit funding for activities of State and Federal animal health officials

Preparedness - Producers/Practitioners

- Encourage reporting of suspicious events
- Participate in test exercises
- Disseminate educational information

Response - Producers/Practitioners

- Active participants in decisions on quarantine zones, disposal methods, and use of vaccines
- Distribute information on outbreak situation
- Encourage reporting

Recovery - Producers/Practitioners

- Assure availability of indemnity funds
- Provide feedback to improve future responses

Strategic Plan - Five Goals

1. Build an Effective and Coordinated National Response Infrastructure.

2. Develop Coordinated Emergency Response Plans and Agreements.

3. Improve the National Animal Health Surveillance System.

4. Improve the Research and Development that Support the NAHEMS.

5. Expand Training, Education, and Public Awareness to Support the NAHEMS.

State Animal Health Emergency Management System Standards

- Emergency Management Plans
- Written Agreements
- Authorities and Policies
- Surveillance
- Communication
- Training and Education
- Funding

State Self-Assessment - 1999 vs. 2001

- Written Emergency Response Plan
  - 1999 33 States
  - 2001 46 States
- Written Agreements - State and Federal
  - 1999 18 States
  - 2001 32 States
- Surveillance - Require Reporting List A Diseases
  - 1999 28 States
  - 2001 41 States
- Training and Education
  - 1999 18 States
  - 2001 27 States

2001 ANNUAL REPORT

United States National Animal Health Emergency Management System (NAHEMS)

March 2002

Developed by:
The National Animal Health Emergency Management (NAHEM) Steering Committee

Representing:

American Veterinary Medical Association (AVMA)
Animal Agriculture Coalition (AAC)
American Association of Veterinary Laboratory Diagnosticians (AAVLD)
Federal Emergency Management Agency (FEMA)
National Emergency Management Association (NEMA)
United States Department of Agriculture (USDA)
- *Agricultural Research Service (ARS)*
- *Animal and Plant Health Inspection Service (APHIS)*
- *Cooperative State Research, Education, and Extension Service (CSREES)*
- *Food Safety and Inspection Service (FSIS)*

United States Animal Health Association (USAHA)

Industry Guidelines

- National and State/Affiliate Organization Surveys
  - Sent Sept. 2000
- Industry Survey Results Presentation
  - USAHA 2000
- Industry Guidelines Developed from Survey
- Industry Guidelines Reviewed
  - NAHEMS Steering Committee
    - » Partnership and Standards Subcommittee
  - Animal Agriculture Coalition

Industry Guidelines

- National Industry Guidelines
- Regional/State/Local Industry Guidelines

National Industry Guidelines

A. Emergency Management Plan
B. Written Agreements
C. Authorities and Policies
D. Surveillance
E. Communication
F. Training and Education
G. Funding
H. Cross-Species Coordination

A. Emergency Management Plans

- Identify key industry contacts to notify in the event of an emergency and the process for notification.
- Designate industry leaders for key decision making to represent industry's views.
- Outline roles and responsibilities of industry leaders, health committees, and staff.
- Develop industry emergency contacts in each state/regional affiliate organization.

A. Emergency Management Plans

- Provide a description of how industry will participate in the development, implementation, and exercise of federal or national response plans.
- Provide an outline to state/regional affiliates for participation in state/national plans.
- Provide for industry's response to natural disasters.
- Include periodic evaluation.

B. Written Agreements

- Written agreements to lay out the roles and responsibilities for each participant.

- National industry organizations should provide in writing to USDA and States their communication plans and specific policy views on control and eradication procedures.

C. Authorities and Policies

- Review of current USDA Standard Operating Procedures.
- Asking regional/state organizations to review the Standards for State Animal Health Emergency Management Systems, discuss their state's assessment with their state and federal animal health officials, and develop and implement a plan to address areas needing improvement.
- Participation in disease specific workshops on procedures and policy development.

C. Authorities and Policies

- Development of industry views on control and eradication procedures for specific diseases including carcass disposal and use of vaccines.
- Development of industry views on zoning.
- Understanding the process for an emergency and an extraordinary emergency declaration and their purposes.
- Understanding current USDA and State authority.

D. Surveillance

- Review the list of reportable diseases for your industry with APHIS.
- Understand how States address these reportable diseases.
- Understand the current surveillance program for diseases in your industry.
- Encourage state/local industry groups to participate with state-based surveillance plans.

E. Communication

- Identify important contacts in the event of an animal health emergency.
  - State and Federal animal health and emergency management officials
  - Industry leaders
  - Industry
  - Private sector experts
  - Media
  - National farm organizations
  - National veterinary organizations
- Develop a communication plan that keeps your industry informed from the initial diagnosis of a foreign animal disease through the conclusion of the incursion. The plan should complement USDA and state plans. Include strategy for print, broadcast, web, news releases, state associations, staff, etc. Include strategy for initial notification and then subsequent reports. Include timelines for specific elements of communication plan.
- Provide an industry contact list with office phone and fax numbers, email addresses and home numbers to USDA and state animal health officials.
- Develop or support risk communication plans for disease agents to explain their animal health and public health significance.

F. Training and Education

- Develop biosecurity protocols that specifically address foreign animal disease prevention.
- Develop and implement awareness programs for your industry of the risks of foreign animal diseases and appropriate biosecurity practices. The biosecurity practices should include protocols to address additional biosecurity needs for infected and non-infected herds after the diagnosis of a foreign animal disease has been made. (This could include presentations to animal health committees, industry newsletters, state programs, articles in trade magazines, etc.)
- Develop awareness plan for producers including when and how to report a suspicious situation and their responsibilities.
- Develop awareness plan for state/affiliate associations.

F. Training and Education

- Make your industry's animal health committee aware of National Animal Health Emergency Management System Steering Committee activities.
- Maintain a file of background information on foreign animal diseases of concern for your industry.
- Develop a guide for producer participation in test exercises.
- Have key staff understand and/or complete specific Federal Emergency Management Agency training courses.
- Participate in test exercises.
- Be aware of training and education programs for diseases of concern to your industry for State and Federal animal health officials, practitioners, and laboratory diagnosticians.

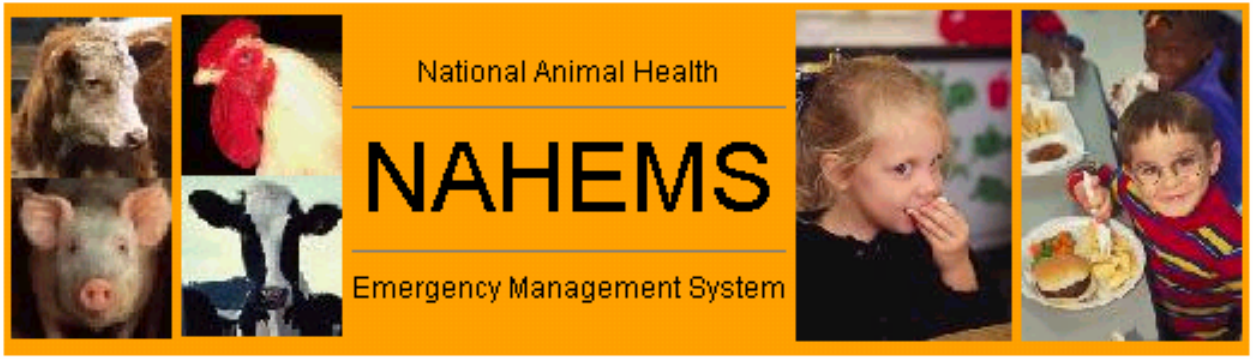
G. Funding

- Understand the Federal process for obtaining emergency funds.
- Develop and implement a plan to support adequate funding for emergency management activities.
- Explore risk management strategies for their industry.
- Explore contingency plans for industry funding.

H. Cross-Species Coordination

- Develop plan for coordination of communication and response in case of diseases that affect multiple species.

http://www.usaha.org/NAHEMS/



Hot Topics	Resources	Links
▪ Current Disease Issues ▪ Current Natural Disaster Issues	▪ Steering Committee ▪ OIE Reportable Diseases ▪ Strategic Plan ▪ Ag Bioterrorism Concerns ▪ State Standards ▪ Training Opportunities	▪ State Animal Health Emergency Management Systems ▪ Key Organizations/Partners

NAHEMS is a joint state-federal-industry effort to improve the United States' ability to deal successfully with animal health emergencies. These emergencies can range from flood and drought to introductions of deadly foreign animal diseases such as foot-and-mouth disease, hog cholera, or African swine fever.

In addition to addressing the threat of a major foreign animal disease outbreak, NAHEMS looks at bioterrorism, emerging diseases, and diseases that pose a threat to production and international trade.

By being better able to deal with animal health emergencies, we reduce the threat to the nation's food supply and help maintain the economic well-being of U.S. animal agriculture.

Our focus is on four key elements:

- **Prevention**
- **Preparedness**
- **Response**
- **Recovery**

Producer Educational Efforts

- Producer On-Farm Biosecurity
  - Information in Publications
  - Videos
  - Presentations
  - Satellite Programs
  - Mailings
  - Radio Interviews
  - Websites
  - Quality Assurance Programs

FOREIGN ANIMAL DISEASES (Cont.)

of critical prevention and response capabilities. The pork industry has been included in several activities working to prevent an outbreak, including representation on the USDA Secretary of Agriculture's Advisory Committee on Foreign Animal and Poultry Diseases, participation in the Animal Health Safeguarding Review, being a founding member of the National Animal Health Emergency Management Steering Committee and participation in foreign animal disease (FAD) exercises for Classical Swine Fever and FMD at the state and national level. Pork industry checkoff dollars are used for research focusing on development of vaccines and improved diagnostic tools at the USDA Agricultural Research Service's Plum Island Animal Disease Center.

For the last few years, significant producer and staff time has been devoted to working closely with USDA Agencies and state animal health officials charged with protecting U.S. livestock from foreign animal diseases. Efforts have been directed to preventing entry of a foreign animal disease through meat and other product cargo shipments, passenger character procedures, and mail inspections; ensuring early detection through adequate surveillance and education of producers, practitioners, and diagnostic laboratory personnel; and developing response plans to rapidly contain and minimize the impact of an incursion of a foreign animal disease.

What is biosecurity?

Biosecurity consists of the rules and procedures implemented to protect the health of a herd and avoid entry of any new disease into the herd. Awareness is the key to biosecurity. Producers must realize the risks on their farm and take immediate steps to manage those risks. Because most new diseases enter into the swine herd through animal and people movement and transportation, addressing these situations are essential in a good biosecurity program. Producers should discuss their biosecurity program with their veterinarians.

How can producers use biosecurity to protect herds from FMD?

Much work is being done on the national level to prevent FMD and other foreign animal diseases from entering the United States. The biosecurity practices that are used by producers to protect herds from domestic diseases provide protection against foreign animal disease like FMD. These practices include:

- Isolate new stock for a period determined after consultation with the herd veterinarian.
- Have only truckers who follow biosecurity and who clean and disinfect vehicles before loading. Visually inspect all trucks before loading and reject those that have been improperly cleaned.
- If farm trucks are used, clean, disinfect and dry them before each offsite visit.
- Change clothes and boots after visiting other farms, livestock markets, slaughter plants, etc.
- Provide a clean area for truckers to wash and change clothes.
- Visitors are restricted to the production area and are required to shower in and out of the facility. Visitors must also comply with the farm's established biosecurity program.

FOREIGN ANIMAL DISEASES

How Can I Protect My Herd?

Foot-and-Mouth Disease (FMD) outbreaks have caused severe animal and economic losses in the United Kingdom, Europe and other countries. With the proliferation of worldwide trade, animal movements, and people travel, it would take only one biosecurity breakdown to allow FMD to enter the United States. Checkoff dollars have been used to protect the U.S. swine herd from foreign animal diseases such as FMD by working closely with governmental agencies charged with safeguarding the United States, and developing educational materials for producers and swine practitioners.

The most recent outbreak of this extremely contagious disease in Europe resulted in the cancellation of the 2001 World Pork Expo to avoid the possibility of FMD being brought to the United States. Approximately 40,000 pork producers and consumers were expected to attend the 14th World Pork Expo, including almost 2,000 international visitors from 60 countries around the world. The pork industry decided the possibility of the U.S. swine herd being infected by a foreign animal disease was a risk it didn't want to take.

"We have seen tremendous devastation in countries around the world from Foot-and-Mouth Disease outbreaks. The U.S. has been free of Foot-and-Mouth Disease since 1929, and we don't want to take any risk of a possible outbreak potentially spread through the hosting of World Pork Expo, an event attended by pork producers and pork industry leaders from around the world," said Barb Determan, NPPC President and pork producer from Early, Iowa.

The pork industry has many resources available to help pork producers protect their herds. The following are some commonly asked questions by pork producers regarding the prevention of foreign animal disease.

What are the signs and consequences of FMD?

FMD is a highly contagious viral disease that affects cloven-hooved animals such as cattle, swine, sheep, goats and deer. Signs of the disease include fever and blister-like lesions on the tongue and lips, in the mouth, on the teats and between the hooves. Animals can recover from the disease, but FMD causes severe losses in meat and milk production and leaves the animal debilitated. Due to the contagious nature of the disease and its drastic consequences, infected herds usually are destroyed. People can serve as carriers if the virus contaminates clothes, footwear and the body, particularly the throat and nasal passages. Infection of humans with FMD is extremely rare and consists of a flu-like illness with accompanying blister-like lesions.

How does FMD virus spread?

Biosecurity practices are very important as the FMD virus can be introduced into a herd through a variety of routes. These include:

- People wearing contaminated clothes or footwear or using contaminated equipment.
- Animals carrying the virus.
- Contaminated facilities or vehicles.
- Raw or improperly cooked swill containing contaminated meat or animal products.
- Hay, straw, feedstuffs or other materials contaminated with virus.
- Wind (aerosol).

What are some examples of FMD virus survival times or distances?

Virus survival times depend on temperature, humidity and other factors. Examples from literature citations for FMD virus survival include:

• Bedding	4 weeks
• Clothing	summer: 9 weeks winter: 14 weeks
• Footwear	summer: 9 weeks winter: 14 weeks
• Soil	winter: 3-7 days summer: 4 weeks
• Air (wind)	winter: 21 weeks over land: 37 miles over sea: 155 miles
• Human	nasal passages: <48 hours (persists at 28 hrs.)

What is being done in the United States to prevent an outbreak of FMD?

At the national level, the pork industry has worked with other commodity groups, state and federal animal health officials, and veterinarians to ensure implementation

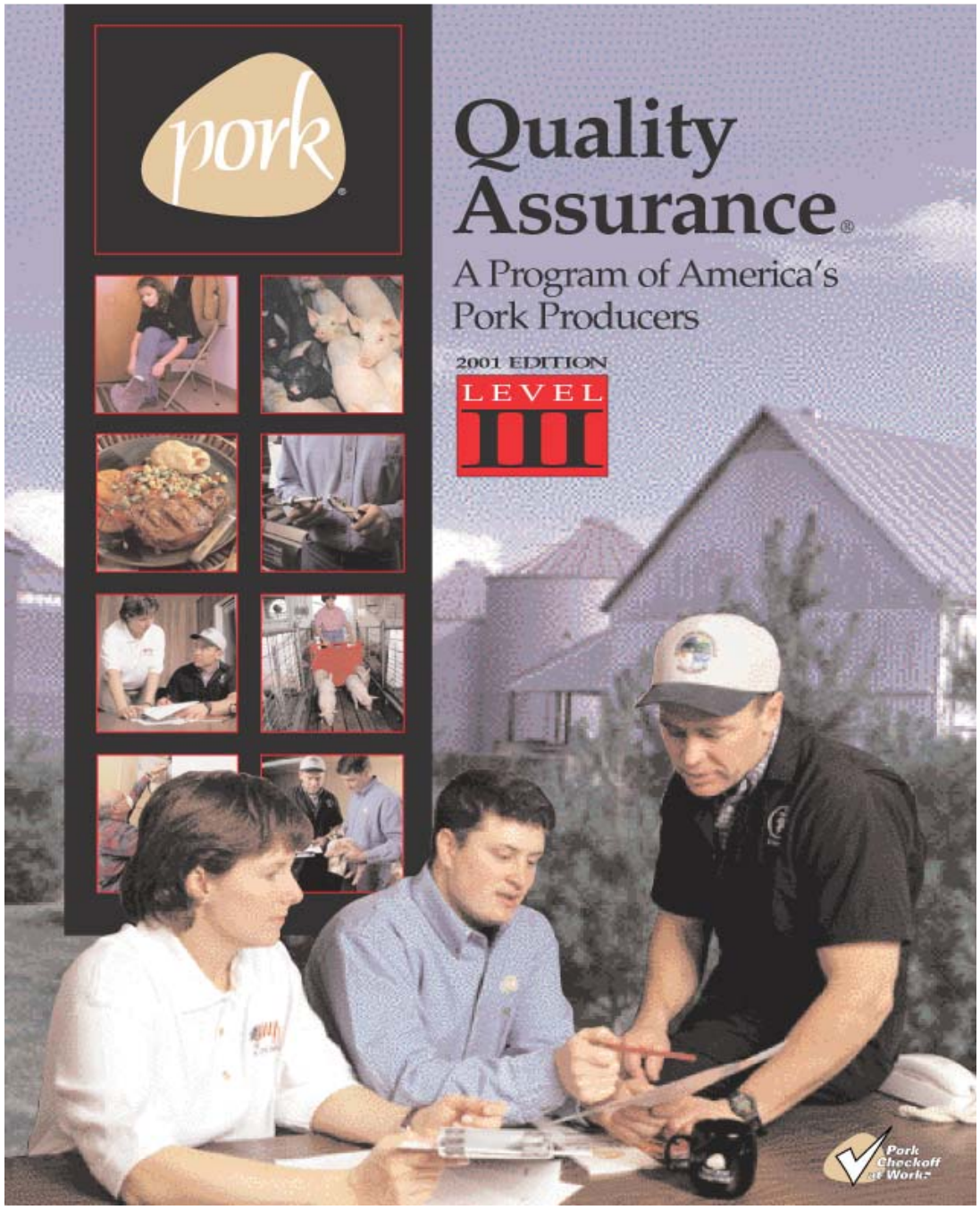
publications available describing biosecurity measures and other ways producers can contribute to the U.S. pork industry's damaging outbreak. Producers can visit www.porkbusiness.org for information on all of these checkoff-funded initiatives. The Hot Topics link on this site also provides access to a variety of basic information on FMD and the outbreak in Europe. ■

FMD & BSE

What every producer needs to know.

The United States is working to remain free of BSE and FMD. Preventing these different diseases requires different actions.

National Cattlemen's Beef Association • P.O. Box 3469, Englewood, CO 80155 • www.beef.org
FMD & BSE information programs are funded in part with beef checkoff dollars on behalf of the Cattlemen's Beef Board.


pork
Quality Assurance®
A Program of America's Pork Producers
2001 EDITION
LEVEL III
Pork Checkoff at Work.

F. Computers

- Restrict access to computers.
- Protect data with virus protection programs.
- Connect critical computers to Uninterruptible Power Supplies.
- Give each user a password and change passwords frequently.
- Use encryption to protect passwords and usernames.
- Set the computer to time out and ask the user to login again after a certain period of inact
- Lock desktop computers and monitors to office furniture using cable locks.
- Protect wiring from environmental damage and tampering using conduit.
- End computer access when an employee is terminated.
- Back up all data frequently.
- Review procedures for backing up critical data systems periodically.
- Test the data security system and procedures periodically.

G. Preparation for an emergency

- Maintain a protocol for triaging and investigating emergencies.
- Identify critical security decision makers to whom employees should report security pro
- emergencies.
- Call herd veterinarian immediately if a foreign animal disease is suspected (See Agrote
- The herd veterinarian will notify authorities if warranted.
- Post contact information for fire, police, and other emergencies.
- Identify a person to handle the media and provide them with press statements and b
- information for the farm.
- Maintain and clearly post an evacuation plan. Give the evacuation plan and a curren
- local fire department. Have evacuation drills to periodically test the plan.
- Include strategy for continued operation (e.g. alternate facility).
- Keep a current inventory of all hazardous materials and flammable products.
- Maintain an employee roster and visitor log to enable a head count if evacuation is

Backup records to keep on and off site in case originals are destroyed

- **Prioritized list of supplies, equipment, and facilities needed to maintain functio**
- **Inventory of equipment and supplies (part numbers, quantity kept on hand)**
- **Accounts receivable**
- **Accounts payable**
- **List of customers names and contact information**
- **List of suppliers' names, contact information, items you purchase and how m**
- **them**
- **Vehicle maintenance schedules, payment schedules, and registration informa**
- **Exact payroll numbers**

for semen or pig shipments

Security

Guide for Pork Producers

Pork Checkoff at Work

Security Guide for Pork Producers

- Purpose
  - Review current security procedures at farm level
  - Increase pork producers' awareness of security risks
  - Develop farm specific security plans that will be effective and efficient
  - Enhance farm level security

Security Guide - Content

A. Preventing unauthorized entry

B. Employees

C. Hazardous materials

D. Deliveries

E. Phone threats

F. Computers

G. Preparation for an emergency

H. Recall strategy for semen or pig shipments

I. Agroterrorism

J. Water security

K. Feed

L. Evaluation of security program

Security Guide for Pork Producers

A. Preventing unauthorized entry

7. Visitors

- Have a “No Visitor” policy for non-service individuals if possible.
- Have a separate policy in place for essential visitors such as consultants, service people, and health professionals…
- Post signs to inform all visitors of rules.
- Designate a parking area for all visitors.
- Escort non-service visitors at all times. Visitors should never be allowed to wander the premises.

Biosecurity

Guide for Pork Producers

Pork Checkoff at Work.

Biosecurity Guide for Producers

Isolation Bio

The greatest risk of pathogen introduction to a herd is b
infected and susceptible pigs is the most efficient way t
a safeguard against such transmission. Isolation allows
of disease before herd entry. Isolation also gives the pr
with certain pathogens and to acclimate or vaccinate i
eases. Failure to isolate new stock offers the greatest r

1. Do you use an isolation facility for incoming repla

a. If you answered no to 1., are all replacement

i. If you answered yes to 1.a, disregard the
section.

ii. If you answered no to both 1. and 1.a,
at very high risk for introduction of a n
questionnaire as a guide to develop an

b. If you answered yes to 1., continue with t

2. Is the isolation facility located...

a. Less than 300 yards from any other swine
b. Greater than 300 yards from any other s
c. Greater than 2 miles from any other swi

3. Is the isolation facility...

a. Completely outdoors/open? _____
b. Indoor/Outdoor? _____
c. Totally enclosed (100% confinement)? _____

4. Is pig flow through the isolation facility...

a. Continuous flow? _____
b. All-in/All-out without cleaning betwe
c. All-in/All-out with cleaning, disinfect

5. Is the duration of isolation...

a. Less than 30 days? _____
b. 30-60 days? _____
d. 60 days or more? _____

tem? _____ Unacceptable
_____ Unacceptable
eturning to the system? _____ Questionable
em the next day
no contact? _____ Adequate
_____ Excellent

replacements in isolation:

_____ Unacceptable
ian _____ Questionable
erinarian _____ Adequate
_____ Excellent
urce herd veterinarian
try of replacements _____ Excellent

ncludes:

_____ Questionable
of clinical signs _____ Questionable
clinical signs, _____ Adequate
tion _____ Excellent
isolation _____ Questionable

nown pathogens of concern:

_____ Unacceptable
_____ Unacceptable
n isolation _____ Adequate
_____ Excellent

_____ Unacceptable
herd following _____ Questionable
_____ Adequate
entry into the
days isolation _____ Excellent

rning coordination of blood testing and vaccination to

Biosecurity Guide for Pork Producers

- Purpose
  - Review current biosecurity procedures and identify strengths and weaknesses
  - Increase pork producers' awareness of biosecurity principles
  - Promote more cautious behavior if risk cannot be avoided
  - Reduce the risk of a new disease agent being introduced into the herd

Biosecurity Guide - Content

- Isolation Biosecurity
  - Facility location
  - Pig flow
  - Personnel
  - Health monitoring and interpretation
  - Acclimation

Biosecurity Guide - Content (cont'd)

- Indirect Spread
  - Facility location
  - Access deterrents
  - Pest and wildlife control
  - Feed
  - Transportation
  - Personnel and visitors
  - Semen
  - Cleaning and disinfecting
  - Carcass removal
  - Supply and product deliveries

Biosecurity Guide for Pork Producers

- Isolation Biosecurity

4. Is pig flow through the isolation facility…

   a. Continuous flow? ……Unacceptable
   b. All-in/All-out without cleaning between groups? ……Questionable
   c. All-in/All-out with cleaning,, disinfection, and downtime between groups? ……Excellent

5. Is the duration of isolation…

   a. Less than 30 days? ……Unacceptable
   b. 30-60 days? ……. Adequate
   c. 60 days or more? ……Excellent

Emergency Preparedness Research

- ARS National Planning Workshop 2001
  - Develop knowledge of animal disease characteristics outside of live host.
  - Improve methods of disease agent eradication on-farm and in post-harvest processing.
  - Develop optimal response mechanisms for large-scale, on-farm animal mortality and product contamination.
  - Develop optimal on-farm recovery protocols resulting from catastrophic animal disease.

Foreign Animal Disease Vaccination Questions

- Decision Matrix Available?
- Validity of Assumptions?
- Prevent Infection?
- Reduce Shedding/Spread?
- Repeat Vaccinations Needed?
- Differential Tests?
- Marker Vaccines?
- Acceptance of Products from Vaccinated Animals?
  - International Trade
  - Consumers
- Cost of Vaccination?
- Broad Coverage - Serotypes?

Bioterrorism - Industry Activities

- Participation in Workshops/Meetings
- Food System Biosecurity Workgroup
  - » “To assist the food industry and government in developing effective measures to prevent, detect and respond to a potential bioterrorist attack involving the food system”
- Alliance for Food Security

“Virtual Safety Net” - We All Have a Role